Renaissance of Public Transport in the United States?

After a decline in the recession years of the early 1990s, public transit use in the United States rose sharply from 1995 to 2000. Unlinked passenger trips increased by 21%, raising total ridership to the highest level in 40 years. The New York metropolitan area accounted for half of the entire nationwide growth. Transit use increased twice as fast in New York as in the rest of the country. The reasons for transit's success include the economic boom in the late 1990s, stable transit fares, rising gasoline prices, improved service quality, and expansions in rail transit systems.

by John Pucher

Pessimistic observers interpreted the downturn in transit ridership during the early 1990s as the onset of another long-term decline of public transit in the United States. For example, Taylor and McCullough[1] described the passenger losses from 1989 to 1993 as "a devastating and enduring blow to public transit." They focused on alarming losses in the 10 largest American cities and especially in New York.

Fortunately, the predictions of continued decline have not come true. On the contrary, passenger levels rose dramatically throughout the United States during the second half of the 1990s. By the year 2000, public transit use in the country as a whole was at its highest level since 1959, over 40 years ago. Moreover, public transit in the New York metropolitan area experienced dramatic growth in ridership, accounting for half of the nation's total passenger growth.

As Figure 1 shows, public transit has had its ups and downs over the past three decades. The 15% drop in passenger trips between 1989 and 1995 was indeed a significant loss. There have been other periods of sharp losses: about 9% between 1970 and 1973, and 6% between 1980 and 1982. But those losses have been more than offset by several periods of impressive ridership growth: 30% from 1973 to 1980, and 21% from 1995 to 2000.[2] Over the entire 30-year period from 1970 to 2000, public transit gained over two billion passengers.[3] It is debatable whether that represents a renaissance of public transport in the United States. Nevertheless, it is an impressive accomplishment, especially with most land-use, housing, transportation, and tax policies in the United States still strongly encouraging auto use and auto-dependent suburban sprawl.[4]

This article focuses on developments in public transit during the decade of the 1990s, and in particular, on the resurgence of transit from 1995 to 2000. It first presents trends in passenger and service levels nationwide and examines alternative explanations for those trends. Then, the article examines in detail the especially important situation in the New York-New Jersey metropolitan area, which has been the most successful at raising public transit use.

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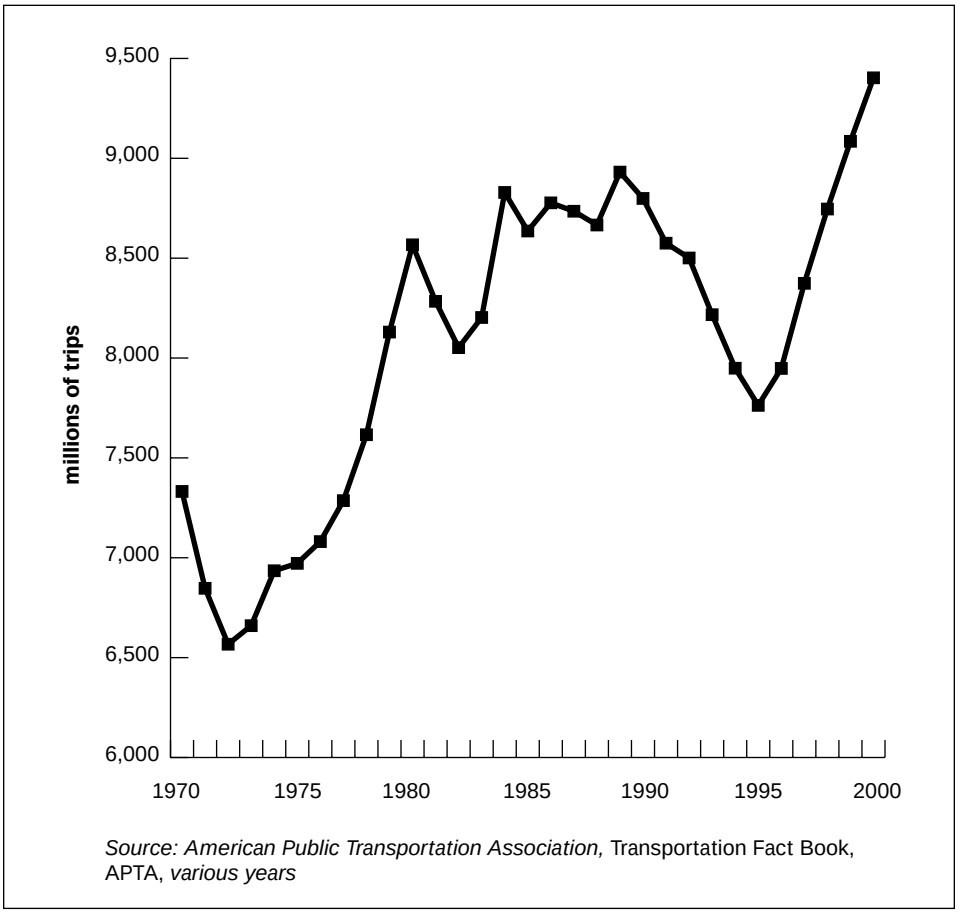
Figure 1: Long-term Trends in Public Transit Ridership in the USA, 1970–2000 (millions of unlinked passenger trips)



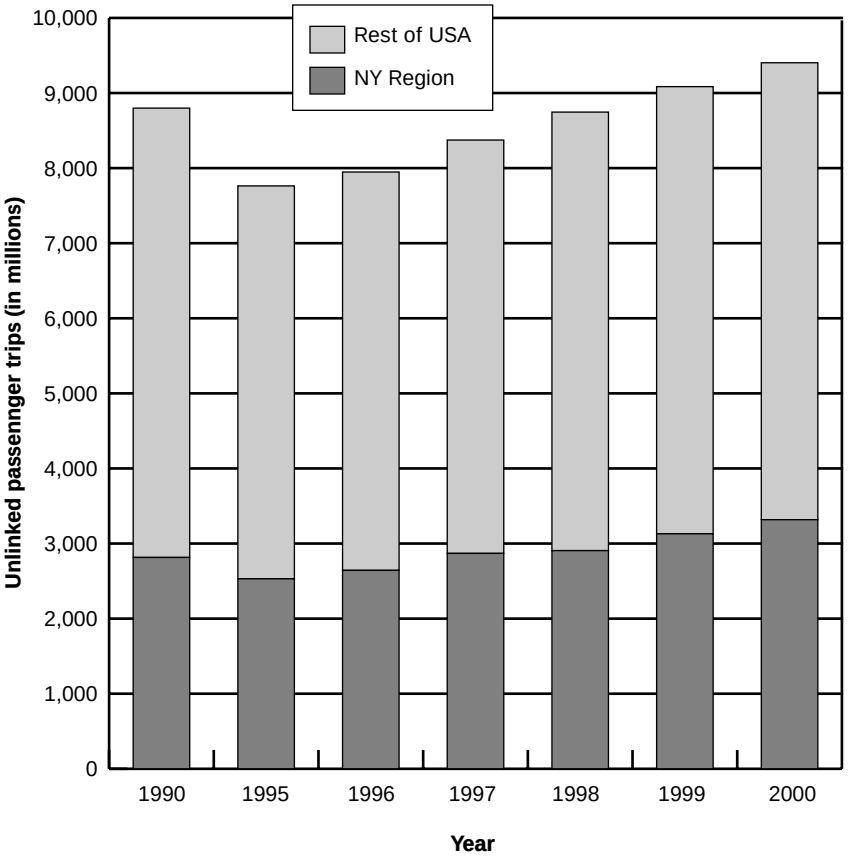
Source: American Public Transportation Association, Transportation Fact Book, APTA, *various years*

Nationwide Trends in Public Transit, 1990–2000

As documented in Table 1, public transit use in the United States fell by over a billion unlinked trips between 1990 and 1995—a decline of 12%. Both bus transit and heavy rail transit (metros) were hit hard, losing 14% and 13% of their riders, respectively.[5] Only light rail transit (+43%) and demand-responsive services (+29%) posted significant gains. Suburban rail systems managed to increase passenger levels by a modest 5%.

As emphasized by Taylor and McCullough,[6] New York accounted for a substantial portion of the nation's ridership loss. Their calculation (59% of the total loss) is for the period 1989 to 1993 and only includes the New York City transit system, which accounts for about three-fourths of the region's transit passengers. When one includes the entire metropolitan region and examines the somewhat longer period 1990-1995, one finds that the New York region accounted for only 34% of the total drop in transit use for the country as a whole.[7] Both calculations use the same unlinked passenger trips reported by the Federal Transit Administration, yet the Taylor and McCullough figure is almost twice as high.

Figure 2: Total Public Transit Passengers, USA Total vs. New York-New Jersey Metropolitan Area, 1990–2000



Source: Federal Transit Administration, National Transit Database, *various years*

The special situation in New York will be examined in much more detail later in this article. It is noteworthy, however, that even in the first half of the 1990s, New York's transit troubles do not appear to have been quite as dire as suggested by Taylor and McCullough. Moreover, the New York region's share of the country's total ridership loss from 1990 to 1995 is almost exactly the same as its percentage of total transit usage overall (about a third). In short, New York lost riders at the same rate as the rest of the country (see Figure 2).

Factors in Transit's Decline, 1990 to 1995

Service cutbacks were not the main reason for declining transit ridership in the early 1990s. In fact, total vehicles miles of service grew by 5%, even as ridership fell by 12% (see Table 2). Moreover, most systems were investing heavily to modernize vehicles, stations, and rights-of-way, so that the quality of service probably rose as well.

The most important reason for the nationwide drop in transit use from 1990 to 1995 was the economic recession in the early

Table 1: Trends in Public Transit Ridership in the United States, 1985-2000 (millions of unlinked passenger trips)

Mode/year	1985	1990	1995	1996	1997	1998	1999	2000
Motor bus	5,675	5,803	4,967	5,004	5,134	5,504	5,596	5,679
Trolley bus	142	126	119	117	121	117	120	122
Light rail	132	175	251	261	262	276	292	293
Heavy rail/metro	2,290	2,346	2,033	2,157	2,430	2,393	2,521	2,688
Suburban rail	275	328	344	352	357	381	396	412
Demand responsive	59	68	88	93	99	95	100	111
Total public transit USA	8,636	8,799	7,763	7,948	8,374	8,746	9,085	9,403
Total Metro NY/NJ	3,195	2,815	2,530	2,643	2,869	2,906	3,130	3,318
% New York/New Jersey	37%	32%	33%	33%	34%	33%	34%	35%

Note: Total public transport passenger trips reported here exceed the sum of the individual modal totals shown in the table because the overall total at the bottom includes a few additional modes such as ferryboat, aerial tramway, cable car, inclined plane, monorail, and vanpool.

Source: American Public Transportation Association, Transportation Fact Book, *APTA: Washington, D.C., various years; and American Public Transit Association website, www.apta.com/stats/ridershp/ and Federal Transit Administration, National Transit Database, annual. Total unlinked trips for New York/New Jersey in 2000 were projected using actual 2000 revenue passenger trips reported by the NY Metropolitan Transportation Council and the 1999 ratio (1.2) by which NYMTC understates unlinked trips (relative to official FTA figures) by excluding free transfers.*

Table 2: Trends in Public Transit Service Provided in the United States, 1985-2000 (millions of vehicle miles operated)

Mode/year	1985	1990	1995	1996	1997	1998	1999
Motor bus	1,863	2,130	2,184	2,221	2,245	2,175	2,276
Trolley bus	16	14	14	14	14	14	14
Light rail	17	24	35	38	41	44	49
Heavy rail/metro	451	537	537	543	558	566	578
Suburban rail	183	213	238	242	251	260	266
Demand responsive	247	306	507	548	585	671	718
Total public transit	3,552	4,128	4,314	4,397	4,500	4,504	4,675

Note: The total public transport passenger service reported at the bottom exceeds the sum of the individual modal totals shown above because the total summation differentially weights individual modes to reflect the varying passenger capacity of vehicles. For example, APTA assigns heavy rail vehicles 2.6 times the capacity of a standard bus, and assigns commuter rail 2.2 times the capacity of a bus. Thus, the total reported here is in terms of bus-equivalent miles of service. The overall total at the bottom also includes a few additional modes such as ferryboat, aerial tramway, cable car, inclined plane, monorail, and vanpool, which are not reported in the table at all.

Source: American Public Transportation Association, Transportation Fact Book, *APTA: Washington, D.C., various years; and American Public Transit Association website, www.apta.com/stats/service/*

Table 3: Trends in Population and Employment in the United States and the New York/New Jersey Metropolitan Area, 1990-2000 (in millions, except for unemployment rates, in percentages)

	1990	1995	1996	1997	1998	1999	2000
U.S. population	248.7	262.8	265.2	267.8	270.2	272.7	281.4
NYC metro population	19.6	19.9	19.9	20.0	20.1	20.2	21.2
U.S. employment	109.4	117.2	119.6	122.7	125.9	128.9	131.8
U.S. unemployment rate %	5.6	5.6	5.4	4.9	4.5	4.2	4.0
NYC employment	3.1	2.9	3.0	3.1	3.2	3.2	3.4
NYC unemployment rate %	6.9	8.2	8.8	9.4	8.0	6.7	5.7
NJ state employment	3.8	3.8	3.9	4.0	4.0	4.0	4.1
NJ unemployment rate %	5.1	6.4	6.2	5.1	4.6	4.6	3.8

Note: The population figures for the Greater Consolidated New York Metropolitan Area include New York City, Long Island, northeastern New Jersey, and northern counties in New York state and Connecticut. The employment figures are only for the five boroughs of the city proper of New York, while those for New Jersey are for the entire state. Employment figures for the Consolidated Metropolitan Area were not available for the same time series.

Source: U.S. Bureau of the Census website (www.census.gov) and the Bureau of Labor Statistics website (www.bls.gov)

Table 4: Trends in Public Transit Fares in the United States, 1985-1999 (average fares per unlinked passenger trip)

	1985	1990	1995	1996	1997	1998	1999
Average fare (in actual $)	.53	.67	.88	.93	.89	.87	.90
Average fare (in 1999 $)	.83	.82	.96	1.00	.92	.89	.90
Transit fare as percent of gasoline price per gallon	43%	61%	74%	74%	74%	81%	76%

Note: The average fare shown in the first line is expressed in the current dollar values for each respective year, while the second line adjusts for inflation and the declining value of the dollar over time by expressing fares for all years in constant 1999 dollars. The ratio in the last line is the simple ratio of the average fare to the average price of unleaded, regular gasoline in each year, showing that transit fares have almost doubled relative to the price of gasoline.

Source: American Public Transportation Association, Transportation Fact Book, APTA: Washington, D.C., various years; and American Public Transit Association website, www.apta.com/fares/fares.htm and www.bls.gov

1990s. Indeed, Taylor and McCullough specifically cite this factor for the period 1989 to 1993. Although the total employment level rose from 109 million in 1990 to 117 million in 1995 for the USA as a whole, it actually fell in New York City and remained roughly constant in New Jersey (see Table 3). Moreover, the unemployment rate remained high from about 1990 until 1994. For the USA as a whole, the rate rose from 5.6% in 1990 to 7.5% in 1992, then fell to 6.9% in 1993, 6.1% in 1994, and 5.6% in 1995. Over the same period, unemployment was much more serious in New York City, with rates rising from 6.9% in 1990 to 11.0% in 1992, and then gradually falling to 10.4% in 1993, 8.7% in 1994, and 8.2% in 1995. By contrast, New Jersey's unemployment rates were just about the same as the national average, but higher during the peak of the recession (8.5% vs. 7.5% in 1992).

Another factor that may have contributed to the loss of transit riders was the increase in transit fares during a period of cheap gas prices. As shown in Table 4, the average transit fare rose 31%, from $.67 per trip in 1990 to $.88 per trip in 1995, while gasoline prices rose by only 11%, from $1.08 to $1.20 per gallon. As a result, the relative price of transit rose from 61% of the per gallon price of gasoline in 1990 to 74% in 1995. It is difficult to say how much this relative transit price rise deterred ridership, but it certainly did not help transit.

Public Transit's Rebound, 1995 to 2000

The second half of the decade presents a very different story indeed. Total transit trips rose by 21% between 1995 and 2000, far exceeding the 12% loss from 1990 to 1995 (see Table 1). The biggest increases, by far, have come with rail passengers. While bus usage rose by 14%, it was not enough to offset the even larger loss in bus passengers earlier in the decade. On net, bus trips fell by 2%. In sharp contrast, the net increase in riders over the decade was 18% for urban rail (metro and light rail) and 26% for suburban rail.[8] The 32% increase in heavy rail (metro) passengers from 1995 to 2000 was especially dramatic. Indeed, the 655 million additional heavy rail trips gained from 1995 to 2000 was more than double the 313 million heavy rail trips lost from 1990 to 1995. Light rail and suburban rail also gained riders from 1995 to 2000, but the percentage growth was far less than for heavy rail (17% and 20%, respectively). Clearly, public transit became more rail-oriented during the 1990s, with a substantially higher proportion of total riders in 2000 than in 1990 (rising from 32% to 36% of unlinked trips).

As shown in Table 2, the expansion in vehicle miles of transit service since 1995 has not been nearly as fast as the increase in ridership. Official 2000 figures are not yet available, but between 1995 and 1999, total service grew by only 8%, less than half the 17% growth in passenger trips in that period. With a 24% increase in riders and only 8% more service, metro (heavy rail) passengers were subjected to the most increased crowding. Ridership on suburban rail grew only slightly faster than service levels (15% vs. 12%), with only slightly more crowding. In contrast, there appear to have been plenty of extra seats on light rail, where service grew twice as fast as ridership (40% vs. 16%).

The greater rail orientation of public transit in the USA is partly due to the enormous investment in new and expanded rail systems over the past two decades. As shown in Table 5, 21 completely new rail systems have begun operations since 1985, including 10 light rail systems, three heavy rail systems, and eight suburban rail systems. Moreover, the trend toward rail seems almost certain

Table 5: Expansion of Rail Transit Systems in the United States

	Light rail	Heavy rail (metro)	Suburban rail	Total rail transit
Route miles operating, 2000	439	1,269	3,823	5,531
New systems since 1985	10	3	8	21
Route miles under construction, 2000	71	28	135	234
Route miles in design stage, 2000	233	6	300	539
Route miles in planning stage, 2000	532	90	2,334	2,956

Source: American Public Transportation Association, Transportation Fact Book, *APTA: Washington, D.C., 2001; and American Public Transportation Association, unpublished data on new rail project starts*

to continue in the coming years. As of 2000, 234 route miles of new rail systems were under construction, 539 additional route miles were in the design stage, and 2,956 route miles were in the planning stage.

Factors Facilitating Transit's Comeback

Overall, the New York metropolitan area was the main force in producing the impressive nationwide gain in public transit use from 1995 to 2000. It accounted for almost half of the total increase (788 million out of 1,640 million additional riders). While passenger levels rose by 21% for the country as a whole between 1995 and 2000, they rose by 31% in the New York region. Excluding the New York region, transit ridership grew by only 16%. In fact, the growth in transit ridership has been almost twice as fast within the New York region as outside of it (31% vs. 16%).

Thus, American public transit's dramatic turnaround at mid-decade was largely due to burgeoning public transport use in New York, which is discussed in detail later in this article. But it was also due to an economic boom in all sections of the country, leading to record low unemployment rates, soaring worktrip demand, increased travel for other purposes as well, and rapidly worsening roadway congestion. As shown in Table 3, total U.S. employment rose by 15 million jobs from 1995 to 2000, about twice as fast as the growth in the first half of the decade. Moreover, the unemployment rate fell to only 4% in 2000. That reversal was even more dramatic in the New York region. Between 1995 and 2000, the unemployment

Ridership on the Washington, D.C. Metro has soared over the past decade, making it the second largest heavy rail system in the country, second only to New York and with 50% more passengers than Chicago's system. The D.C. Metro was one of the first to provide direct rail access to its airport, Reagan Washington National. Many other systems have followed, so that nine American cities now have rail connections to their airports. Photo courtesy American Public Transportation Association (APTA).

rate fell from 8.2% to 5.7% in New York City, and from 6.4% to 3.8% in New Jersey. In contrast to the country as a whole, total employment levels in New York City had actually fallen by 6% in the first half of the decade, but then rebounded by 17% over the second half of the decade. In New Jersey, total employment remained roughly constant until 1995, then grew by 8% in the second half of the decade. Both for the country as a whole, and especially in the New York region, the much lower unemployment after 1995 gave a boost to transit, which relies heavily on worktrips for its passenger base.

Transit fare and gasoline price trends were also a bit more favorable for public transport in the decade's second half (see Table 4). Average transit fares rose by only 2% from 1995 to 1999; indeed, adjusting for the declining value of the dollar, fares actually fell by 6% in constant dollars. At the same time, the average price of a gallon of gasoline fell slightly from $1.20 in 1995 to $1.19 in 1999, and then rose sharply to $1.59 in 2000. That sudden rise in gasoline prices may also have helped public transit at the end of the decade.

Congestion has been increasing on most urban and suburban roadways in the USA for the past two decades. That is confirmed by the periodic measurements of the congestion index produced by the Texas Transportation Institute.[9] With almost all metropolitan areas experiencing worsening congestion throughout the 1990s, the push for new rail systems with separate rights-of-way may be understandable. More than a thousand miles of HOV lanes are currently available for use by buses (and carpools).[10] Nevertheless, most American cities do not provide buses any insulation at all from roadway congestion, which slows down buses and makes their schedules less reliable.

The traffic situation in New York is a bit different. New York's congestion index actually fell from 1.05 to 1.01 between 1990 and 1992 but rose sharply to 1.11 by 1997.[11] The fall in the early 1990s and rise in the late 1990s are inversely correlated with the especially high unemployment rate in the early 1990s and the low unemployment in the late 1990s. Clearly, low unemployment and high levels of economic activity encouraged more travel, leading to more roadway congestion. That greatly increased the attractiveness of rail transit with separate rights-of-way, of which the New York region has more than the rest of the country combined (505 million vehicle miles of rail service vs. 386 million outside the New York region).[12] The New York region also benefits from exclusive bus lanes on the most important access routes from New Jersey and Long Island into Manhattan, so that even bus services have attracted many motorists who would otherwise be sitting in traffic jams on the regular lanes.

The expansion of public transit services and moderation in transit fares over the second half of the 1990s were facilitated by a substantial increase in government assistance (see Table 6). When calculated in inflation-adjusted, constant dollars, the increase in total government subsidy (from all levels) was almost three times greater in the four years from 1995 to 1999 than it was during the five years from 1990 to 1995 (14% vs. 5%). At least it appears to have paid off in this case, producing the second largest increase in transit ridership since 1970.

Public Transit Boom in New York

For many years, the residents of the Greater New York metropolitan area have been the country's best customers of public transit. While Americans, on average, make less than 2% of their trips by any form of public transport, New Yorkers rely on public transport for roughly a fourth of their daily travel.[13] The New York metropolitan area accounts for only 7% of the nation's total population but for 35% of the nation's public transport riders. The recent boom in public transit in the

Table 6: Trends in Public Transit Subsidies in United States, 1988-1999 (in millions of dollars)

	1988	1990	1995	1999
Operating subsidies	8,471	9,267	10,172	12,575
Capital subsidies	3,865	4,936	7,230	8,975
Total subsidy	12,236	14,203	17,402	21,550
Subsidy in 1999 dollars	17,253	18,038	18,968	21,550

Note: The total subsidy line represents the actual subsidy for each year, without adjusting for inflation and the declining value of the dollar. The bottom line in the table adjusts for inflation by expressing all subsidy values in terms of constant 1999 dollars, thus reflecting the real increase in purchasing power or value of the subsidies.

Source: American Public Transportation Association, Transit Fact Book, *APTA: Washington, D.C., various years; and American Public Transportation Association website, www.apta.com/stats/fundop/opfund.htm, and www.apta.com/stats/fundcap/capfund.htm*

Ridership on the New York City subway rose by 34% between 1990 and 2000, causing severe overcrowding on most lines. Photo courtesy New York City Transit (NYCT).

New York region has yet further enhanced its dominance in American public transit.

Public transit systems in all portions of the metropolitan area have experienced growth in passenger levels. The region includes the 8.0 million residents of New York City proper, as well as the 13.2 million residents of the suburbs to the west in New Jersey, to the east on Long Island, and to the north in downstate New York and Connecticut.

Table 7 presents detailed breakdowns on public transport passenger levels in the Greater New York metropolitan area. Unlike the trip figures reported in all previous tables, these are revenue passenger trips, as reported annually by the New York Metropolitan Transportation Council (NYMTC), the official metropolitan planning organization for the region.[14] It has compiled comprehensive transportation statistics for the entire region for the past three decades. NYMTC reports revenue trips because it ensures internal consistency with the long series of trip data they have collected since 1970. The differences

Table 7: Trends in Public Transit Passenger Levels in the New York-New Jersey-Connecticut Metropolitan Area, 1990-2000 (millions of revenue passenger trips)

	1995	1996	1997	1998	1999	2000
Bus systems, total	809	848	910	982	1038	1078
NYC Transit	460	488	541	615	666	699
NYC privates	78	79	82	80	81	82
NYC suburban	59	66	69	70	72	73
NJ Transit	126	127	130	133	138	142
Conn Transit	10	12	12	12	12	12
CT privates	9	9	8	9	10	10
NJ privates	67	67	68	63	59	60
Urban rail, total	1161	1179	1203	1276	1359	1463
NYCT subway	1093	1109	1132	1203	1283	1381
Staten Island RT	5	5	4	4	4	4
PATH & Newark	63	65	67	69	72	78
Suburban rail, total	183	185	190	201	209	222
Long Island	74	74	76	80	82	86
Metro North	61	62	63	65	67	71
NJ Transit	48	49	51	56	60	65
Harbor ferries, total	24	25	24	27	28	28
Staten Island Ferry	17	18	17	19	20	20
Private ferries	7	7	7	8	8	8
Total public transit trips						
NYMTC revenue trips	2177	2237	2327	2486	2634	2791
FTA unlinked trips	2530	2643	2869	2906	3130	3318

Note: Urban rail includes almost exclusively metro and subway services in the New York/New Jersey metropolitan region, with light rail accounting for less than 1% total passengers in 2000. It is important to note the enormous difference between these revenue passenger trip figures reported annually by the New York Metropolitan Transportation Council (the metropolitan planning organization for the region), and the Section 15 trip figures reported by the FTA in its National Transit Database. The FTA figures are about 20% higher due to the inclusion of free transfers between subway lines, which are significant in the New York transit system but require special surveys to estimate.

Source: New York Metropolitan Transportation Council, Annual Public Transportation Revenue Passengers in the Tri-State Region, 1989-1999; and updated passenger statistics for the year 2000 from individual public transport systems in the region

between the NYMTC data and the Federal Transit Administration's (FTA) Section 15 ridership data are considerable, as seen at the bottom of Table 7.

Nevertheless, both NYMTC's revenue trip data and FTA's unlinked trip data unmistakably portray a transit boom since 1995 in the New York metropolitan area. That boom has been centered on the New York City Transit System. Its bus usage grew by 52%, while subway usage rose by 26%. Together, the bus and subway services of New York City Transit (NYCT) accounted for 86% of the total growth in public transport use in the region,

Ridership on New Jersey Transit's suburban rail rose by 48% between 1990 and 2000, leading to crowded platforms (as shown above in Newark) and trains filled beyond capacity, with passengers forced to stand in the aisles and in the vestibules between cars. Photo courtesy M. Rosenthal (photographer for New Jersey Transit).

and by 2000 accounted for 75% of total revenue passenger trips in the region.

The many other transit systems listed in Table 7 represent important components of the region's public transit network. They have also thrived, even if their growth has not been as dramatic as NYCT. New Jersey Transit (NJT), which serves New York's western suburbs, has enjoyed almost continuous growth in riders throughout the decade. NJT suburban rail usage rose by 10% even during the recession years between 1990 and 1995. During the boom years of 1995 to 2000, NJT's rail systems attracted 35% additional passengers, more than twice the rate of growth for the other suburban rail systems in the region. Passenger levels rose by 16% on the Long Island Railroad, the nation's largest commuter railroad, which serves New York's eastern suburbs. Passenger levels also rose by 16% on Metro North, the railroad serving the northern suburbs in downstate New York and Connecticut.

Reasons for New York's Public Transport Boom

The impressive surge in public transit use from 1995 to 2000 was partly due to the economic boom in the Greater New York Metro Area during the late 1990s. Rapid job growth and increasing affluence encouraged more travel of all types. Increased travel demand directly benefited public transport, but it also helped to raise passenger levels by forcing travelers off the increasingly congested streets and highways and onto subways and suburban trains.[15]

A second factor in public transport's success has been a sharp improvement in fare policy. NYCT provides the most dramatic and impressive example of how crucial fare policy is. In 1997, NYCT introduced the MetroCard, which for the first time provided riders in New York with a quantity discount (11 rides for the price of 10) and equally important, a free transfer between

New York City Transit's MetroCard vending machines allow customers to purchase a wide variety of fares and passes using cash, credit, or debit cards. Photo courtesy New York City Transit (NYCT).

bus and subway. For many passengers, it represented a 50% discount on what they had formerly paid, and it probably explains why bus usage has risen even more than subway usage. Transfers within the subway system (among lines) have been free for decades, but the MetroCard essentially made free any bus rides to access subway stations. Moveover, for the first time, monthly, weekly and daily passes were introduced in 1998, allowing unlimited travel for frequent travelers. By 2000, 67% of all riders used some form of discounted MetroCard. NYCT estimates that the various discounts reduced the average fare by 22% from 1997 to 2000.

Fare policy has also been crucial in raising public transport use in New York's western suburbs in New Jersey. With fares held constant for more than 10 years, the real price of taking public transport has fallen by about 25% in constant, inflation-adjusted dollars. At the same time, roadway tolls for routes between New York and New Jersey rose, parking fees in Manhattan skyrocketed, and gasoline prices increased. Thus, public transport has become cheaper relative to auto travel into New York City.

As important as fare policy has been, all the region's public transport systems emphasize the improvement in service quality as a major reason for the rise in passenger levels. At NYCT, for example, the MetroCard was followed up by service expansion. Between 1996 and 2000, seat kilometers of capacity increased by 8% for subways and by 21% for buses, bringing service levels to their highest since 1963. Likewise, NJ Transit has steadily added new trains and buses to their schedules, introducing more express services and increasing service frequency. Moreover, NJT has been completing new connections between rail lines that enable faster, more convenient access to Manhattan without a transfer.

In spite of these service improvements, overcrowding has become a serious problem on public transport throughout the region. Cars packed with standees have become common on suburban rail, even on weekends. Rider groups (such as The Straphangers in New York) have vociferously called for much larger service expansion. While service increases so far have not matched passenger growth, some of the new passenger trips have been accommodated on lines with unused capacity, during off-peak hours, or in the off-peak direction of travel. Moreover,

NYCT plans increases in peak-hour subway capacity when new rail cars become available in late 2001.

Investments in new vehicles, facilities, and maintenance practices have increased service reliability. For example, the average distance between subway breakdowns at NYCT increased from 22,358 miles in 1989 to 110,180 miles in 2000, a five-fold improvement. NJ Transit has raised the on-time performance of its suburban trains to 97%.

Another crucial improvement to New York's subway system is the reduced crime rate. Over 600 police officers were added in the 1990s to patrol the system. Moreover, by fingerprinting and investigating all fare evaders, the police have caught many serious criminals before they even get into the system. The result has been a stunning 71% drop in felonies committed on the subways since 1989.

Recent and Ongoing Capital Projects

Among the most visible signs of investment in public transport are the renovated railroad stations in Manhattan. Metro North's Grand Central Terminal has been so gloriously restored that it is now one of the most beautiful public spaces in the country. Filled with restaurants, cafes, food markets, and shops of all kinds, the station has become a destination and tourist attraction in its own right. In addition, new entrances increase the access to platforms from the north, saving walking time for workers north of 45th Street. Penn Station (shared by Amtrak, NJ Transit, and the Long Island Railroad) has been modernized and expanded, including a new $105 million East Concourse (opening in 2002) specifically for NJT. Nevertheless, the complex remains a purely utilitarian, rather oppressive basement station that pales in comparison to the elegant and spacious Penn Station demolished in the 1960s to make way for a skyscraper.

New buses and trains as well as renovated stations provide perhaps the most visible evidence of capital investment. During the 1990s, the New York City Transit System spent more than $13 billion to modernize and upgrade stations, vehicles, tracks, tunnels, and signaling, and that came on top of $11 billion spent on such capital improvements during the 1980s. Over 150 subway stations have been rebuilt. More than 5,800 subway cars and 4,400 buses have been replaced or rebuilt. An additional 2,400 new, state-of-the-art subway cars will be put into service by 2004.

The single largest capital project currently underway at NYCT is the $650 million connection through the 63rd Street Tunnel (under the East River). It should be completed in late 2001 and will provide a faster routing for the heavily-used Queens Boulevard line. That improved link will permit 20% more subway trains per hour between Manhattan and Queens.

NJ Transit has been constructing similar connection improvements. The Midtown Direct and Montclair Connections enable suburban rail riders on some northern lines to travel directly into Penn Station Manhattan instead of their former circuitous route via Hoboken with a transfer to the PATH subway line to cross the Hudson. The new Secaucus Transfer (opening in 2003) will still require changing trains but will permit a much faster trip to Manhattan through an easy transfer from several other northern lines to the Northeast Corridor line into Penn Station, instead of the current circuitous route via the Hoboken terminal.

Similar to NYCT, NJ Transit has also made vehicle replacement and station rehabilitation a focus of its $6 billion capital investment program. About a third of its 150 suburban rail stations have been thoroughly rebuilt and modernized, including high-level platforms for easy and quick boarding. By 2005, NJ Transit will have completely replaced its bus and rail fleets with new vehi-

New Jersey Transit has rebuilt a third of its 150 suburban rail stations to provide easier boarding, waiting rooms, and extensive park and ride facilities. Photo courtesy M. Rosenthal (photographer for New Jersey Transit).

cles, including 1,400 new buses, 200 new single-level rail coaches, and 70 rehabilitated rail coaches in the next two years alone. New double-decker rail cars will be introduced on NJT's congested Northeast Corridor Line from Trenton to Manhattan by 2004 or 2005.

The main problem for NJ Transit and the Long Island Railroad is the need for more capacity into Manhattan. The existing Hudson River and East River tunnels must be shared with all Amtrak trains entering New York, resulting in serious congestion. Moreover, Penn Station—shared by NJ Transit, Amtrak, and the Long Island Railroad—is already used beyond its capacity, leading to frequent delays as trains must queue to enter or leave the station. The most pressing needs are for a new Hudson River tunnel, expanded track and platform capacity at Penn Station, and a tunnel to link Penn Station with Grand Central. Unfortunately, the enormous funding required and turf battles among the three railroads have held up progress on expansion.

So far, the only new light rail line in the Greater New York area is NJ Transit's Hudson-Bergen Line in the counties immediately west of the Hudson River. The line already is in operation for 12 km in Bayonne and Jersey City and is being extended another 10 km in the coming years. NJ Transit is also renovating and extending the old Newark Subway, the only other existing light rail line in the entire region. That will provide an important connection between Newark's two railroad stations (Penn Station and Broad Street Station) and to Newark City Hall. Eventually, it may extend further south to Newark Airport and Elizabeth.

The Port Authority of New York and New Jersey is now completing the first rail links to the region's airports. For several years, the monorail at Newark Airport has connected the three terminals with each other and with long-term parking lots. In October 2001, that monorail was extended

to a new suburban rail station on NJ Transit's Northeast Corridor Line. It now provides direct rail access to the airport from Newark and Manhattan to the north and from New Brunswick, Princeton, and Trenton to the south. Once the Secaucus Transfer opens in 2002, the entire rail network will have access to Newark Airport. In 2002, the Port Authority will also have a rail link to Kennedy Airport. The fully automated, fixed guideway JFK AirTrain will connect the airport with the Long Island Railroad (LIRR) suburban rail station at Jamaica and the NYCT subway station at Howard Beach, as well as long-term parking lots. Newark and Kennedy Airports will thus become the ninth and tenth airports in the USA to have direct rail links to central cities.

Impacts of Recession and Terrorist Attacks

Public transit benefited greatly from the economic boom of the late 1990s. That was true for the country as a whole but especially for the New York region. As of late autumn 2001, however, it seemed virtually certain that the national economy would be heading into a recession. Moreover, the New York economy is likely to suffer the most. The dramatic fall in stock markets had already hurt New York by mid-2001, with multiplier effects on the local economy.

Far worse, the terrorist attack on the World Trade Center on September 11, 2001, destroyed an important part of the financial district in Lower Manhattan, including several subway stations and tunnels. There have been enormous disruptions in New York's economy and transport system ever since. It will take many billions of dollars just to repair the damage done, let alone begin any new capital projects, such as the planned Second Avenue subway or the new LIRR tunnel under the East River to access Grand Central Terminal. Tourism has dropped off sharply since the attacks, with many New York hotels, restaurants, and theatres in dire financial straits. The finances of New York City as well as New York State have been dealt a devastating blow; the region can only hope for generous federal aid for reconstruction. The Comptroller of New York estimates the costs for the coming two years to be almost $100 billion: $34 billion in property damage and $60 billion in lost jobs and rents, with a corresponding loss in tax revenues.[16]

The initial national passenger trends for 2001 show continuing ridership growth. The American Public Transportation Association (APTA) reported a 3% increase in transit trips for the first six months of 2001 (compared to the same period in 2000).[17] Unfortunately, the growth seems unlikely to continue. National transit use will probably fall later in 2001 and into 2002 due to the national recession (and falling gasoline prices) and the special, terrorist-induced decline in ridership in New York, public transit's best market. With segments of five key subway lines completely out of service, and with tens of thousands of jobs lost in the financial district, it seems almost certain that New York's transit use will fall for the coming year or two at least.

Thus, it looks like public transit may be headed into another downward portion of its cyclical ridership curve, due to factors beyond the control of the transit industry. It is important to note, however, that cyclical ups and downs have been typical for transit and must be viewed in a longer-run context. As Figure 1 so clearly portrays, the long-term trend in public transit use has been encouraging over the past thirty years. The 21% growth in ridership between 1995 and 2000, in particular, was very impressive. It should not be overshadowed by the likely ridership losses due to recession and the tragic terrorist attack on New York in September 2001.

Endnotes

1. Taylor, Brian and McCullogh, William, Lost Riders, Access, No. 13, Fall 1998.

2. Part of the jump in ridership from 1973 to 1980 was due to APTA's inclusion of additional transit modes (suburban rail, ferry boat, and inclined plane) in the 1980 total trip statistic for the first time. If one subtracts out those additional modes from the 1980 trip total, it yields a net increase of 23% from 1973 to 1980 instead of the 31% calculated from the unadjusted figures. Thus, the real increase in transit use was substantial even when controlling for the statistical change in 1980. It is important to emphasize that the 21% increase reported for the period 1995 to 2000 is not distorted in this way, since exactly the same trip definitions and measurement procedures were used in both years. All trip totals reflected in Figure 1 refer to unlinked trips. Prior to 1979, these were called total passenger trips, and they included revenue, transfer, and free trips, and thus were comparable to the current unlinked trips.

3. As noted above, the total increase for the entire 30-year period is slightly inflated by the inclusion of additional transit modes in 1980. If those additional modes are excluded, the 30-year increase in riders is recalculated to be 1.6 billion instead of 2 billion. That adjustment is not quite fair, however, since it excludes suburban rail, which has experienced considerable growth in recent years.

4. Many authors have examined these pro-auto, pro-sprawl policies in detail. For example, see Pucher, J., "Urban Travel Behavior as the Outcome of Public Policy: The Example of Modal Split in Western Europe and North America," *Journal of the American Planning Association*, Vol. 54, No. 4, Autumn 1988, pp. 509-520; Vuchic, V., *Transportation for Livable Cities,* New Brunswick, NJ, Center for Urban Policy Research, 1999; Newman, P. and Kenworthy, J., *Sustainability and Cities,* Washington, D.C., Island Press, 1999; Cervero, R., *The Transit Metropolis,* Washington, D.C., Island Press, 1998.

5. The term *heavy rail,* used by the Federal Transit Administration and the American Public Transportation Association, refers to subway and elevated systems with fully separate rights of way, usually called *metros* in the rest of the world. *Light rail* generally refers to modern trolley, streetcar or tramway systems. *Suburban rail,* also called commuter rail, is usually radially oriented from the city center out to the suburbs, involving considerably longer trip lengths and much wider station spacing than heavy rail.

6. Taylor and McCullough, "Lost Riders."

7. The 1990 and 1995 total transit ridership figures for the New York/New Jersey metropolitan area were obtained directly from the Federal Transit Administration's National Transit Database for those years. They are based on the official Section 15 reports and include all modes of transit and all transit systems in the entire metropolitan region.

8. As explained above, the term *heavy rail* and *metro* are synonymous, refering to subway and elevated systems with fully separate rights-of-way.

9. Texas Transportation Institute, *The 1999 Annual Urban Mobility Report,* College Station, Texas, 1999.

10. American Public Transportation Association, *Public Transportation Fact Book,* 2001.

11. Texas Transportation Institute, *The 1999 Annual Urban Mobility Report.*

12. Federal Transit Administration, *National Transit Database,* 1999 detailed service level report by urbanized area.

13. Federal Highway Adminstration, *1995 Nationwide Personal Transportation Study,* Washington, D.C., U.S. Department of Transportation, 1998.

14. Although NYMTC refers to its trip data as revenue passenger trips, they are, in fact, a strange mixture of linked and unlinked trips, revenue and non-revenue trips. The main difference is that NYMTC excludes all free transfers between subway lines, while the FTA makes special survey estimates of these free transfers. By contrast, the NYMTC figures include free transfers between bus lines, and also between bus and subway lines. In all cases where a passenger passes through a turnstile (even with a free transfer), NYMTC counts it as another trip. Free transfers among subway lines do not require passing through a turnstile and thus do not get counted by NYMTC because the New York City Transit system does not count them as separate trips. The same is true of the PATH subway lines between New Jersey and New York, which also allow free transfers between lines without passing through turnstiles. NYCT claims that the FTA's survey method for estimating free transfers between subway lines is not accurate and thus prefers reporting only those trips that are recorded by turnstile counts.

15. All the detailed information about New York City Transit, New Jersey Transit, and the Port Authority of New York and New Jersey was provided directly by the planning offices of those agencies and by the New York Metropolitan Transportation Commission.

16. Steinhauer, J., "Guiliani to Ask City Agencies for Broad Cuts," *New York Times*, Tuesday, October 9, 2001, p. D-1.

17. American Public Transportation Association, www.apta.com.

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United States - United States - Transportation: The economic and social complexion of life in the United States mirrors the countryâ€™s extraordinary mobility. A pervasive transportation network has helped transform the vast geographic expanse into a surprisingly homogeneous and close-knit social and economic environment. Another aspect of mobility is flexibility, and this freedom to move is often seen as a major factor in the dynamism of the U.S. economy. Mobility has also had destructive effects: it has accelerated the deterioration of older urban areas, multiplied traffic congestion, intensif Transportation in the United States is facilitated by road, air, rail, and waterways (via boats). The vast majority of passenger travel occurs by automobile for shorter distances, and airplane (or railroad, in some regions) for longer distances. In descending order, most cargoes travel by railroad, truck, pipeline, or boat; air shipping is typically used only for perishables and premium express shipments. The development of transport facilities was very important in the growth of the United States. The first travel routes were natural waterways. No surfaced roads existed until the 1790s, when the first highways were built.Â The transport network spreads into all sections of the country, but the web of railways and highways is much more dense in the eastern half of the United States. In the early 1990s the United States had about 6.24 million km of streets, roads, and highways. The National Interstate Highway System, 68,449 km in length in the early 1990s, connected the nation's principal cities and carried about one-fifth of all the road and street traffic. More than 188 million motor vehicles were registered in the early 1990s.